

SECTION 01 57 00

TEMPORARY CONTROLS

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Traffic plan and controls.
- B. Construction operations under traffic.
- C. Portable changeable message sign.
- D. Pollution abatement.
- E. Erosion and sediment control.
- F. Dust control.
- G. Mud control.
- H. Noise control.

1.02 MEASUREMENT AND PAYMENT

- A. Measurement:
 - 1. Traffic maintenance and control will be measured for payment as a lump-sum unit, and will include only the items specified herein under Articles 1.04, 1.05, and 1.06.
 - 2. All other items of temporary controls will not be measured for payment, but will be considered incidental to the Work of this Contract.
- B. Payment:
 - 1. Traffic maintenance and control will be paid for at the Contract lump-sum price as designated in the Bid Schedule of the Bid Form.
 - 2. All other items of temporary controls will not be paid for separately but will be considered incidental to the Work.

1.03 REFERENCES

- A. State of California, Department of Transportation (Caltrans), Standard Specifications:
 - 1. Section 12 Construction Area Traffic Control Devices
 - 2. Section 82 Markers and Delineators
- B. State of California, Department of Transportation (Caltrans), Traffic Manual:

1. Chapter 5, Manual of Traffic Controls for Construction and Maintenance Work Zones
 - C. State of California, Vehicle Code.
 - D. American National Standards Institute (ANSI) S1.4: Specification for Sound Level Meters.
- 1.04 TRAFFIC PLAN AND CONTROLS**
- A. Traffic Plan and Permits: The Contractor shall prepare a traffic plan required for the Work. The traffic plan shall include drawings showing proposed traffic control devices. The Contractor shall apply to the jurisdictional agency for approval of the plan and for a permit or permits to work in the public right-of-way.
 - B. Control Devices and Facilities:
 1. Furnish, install, operate, maintain, and remove when no longer required, all traffic control and protective devices required for the approved traffic plan.
 2. Traffic control and protective devices shall include temporary directional electrical warning signs, detour signs, and danger signals; temporary barricades and guard rails; crash cushions; temporary lighting, overhead warning lights and flashing lights; temporary pavement markings, and removal of permanent and temporary pavement markings; and the services of qualified flaggers.
 3. Maintain communication with the jurisdictional agency(s) regarding the Contractor's operations in maintaining and controlling traffic.
 - C. Traffic Control Signs: Each change in location of traffic shall be adequately posted with signs mounted on barricades or standard posts in accordance with requirements of Caltrans Standard Specifications, Section 12. Temporary "No Parking" signs that are to be used for short periods will be provided by local authorities. The Contractor shall make arrangements for providing temporary no parking signs.
 - D. Pavement Marking: Install necessary temporary and permanent pavement marking as required in connection with the temporary street work and remove or obliterate existing or temporary pavement markings whenever vehicle traffic is moved to a newly available pavement area or to different traffic patterns. Refer to Section 32 17 23 - Pavement Markings, for requirements.
 - E. Redirecting Traffic:
 1. All channelizing, shifting of traffic lanes, and barricading of traffic in connection with the Work will be subject to approval of the appropriate jurisdictional agency. Existing local standards for signing and marking of construction areas will apply in addition to the requirements of Caltrans Standard Specifications, Section 12.
 2. When required by the Contract Specifications, or indicated on the Contract Drawings, or required by responsible public agencies, the Contractor shall construct, maintain, and remove detours and detour bridges for the use of public traffic.

3. Failure or refusal of the Contractor to construct and maintain detours at the proper time shall be sufficient cause for closing down the Work until such detours are in satisfactory condition for use by public traffic.
- F. Temporary Closing to Traffic: Prior to temporary closing to traffic of any street, sidewalk, or other access, or to changing traffic patterns from those indicated on the Contract Drawings, obtain approval from appropriate jurisdictional authority, and comply with imposed conditions, at least two weeks before such closures or changes are made. Deviations will be for an emergency condition affecting life and property only, and the Contractor shall immediately notify the Engineer and the appropriate jurisdictional authority of any such emergency changes. Copies of all approvals shall be furnished to the Engineer.
 - G. Temporary Walkways: In areas where removal of existing sidewalks is necessary, access to adjacent businesses, entrances, and properties shall be maintained by temporary walkways having a width of not less than 4 feet.
 - H. Intersections and Street Crossings: Intersections and street crossings shall be excavated and decked in stages as indicated. Construction shall be phased so that the required number of traffic lanes on each street will be provided at all times during these operations. Upon completion of decking installation, traffic in all directions shall be fully maintained. Trenches or open excavations shall be properly bridged where traffic lanes are to be open to traffic.
 - I. Temporary Paving and Patching: Construct, maintain, and remove temporary pavement and patching required to safely and expeditiously handle vehicle and pedestrian traffic, within or adjacent to the jobsite. Temporary pavement and patching composition shall conform to the specifications of the local jurisdictional authority. Any construction, maintenance, or removal required by the Contractor's operations off site shall conform to the requirements specified herein.
 - J. New and Existing Traffic Control Devices:
 1. The Contractor shall arrange with the respective county and municipal authorities to provide governmental services as required for salvaging reusable street-name and traffic signs, removal of parking meters, and for removal, relocation, and adjustment of traffic signals.
 2. The Contractor shall provide such work and construction services as may be required by county and municipal authorities to assist in salvaging reusable street-name and traffic signs, removing of parking meter posts and bases, and removing, relocating, and adjusting of traffic signals, all in accordance with jurisdictional standards and regulations.

1.05 CONSTRUCTION OPERATIONS UNDER TRAFFIC

- A. Definitions: "Construction equipment" is defined for the purposes of this Article as all types of equipment, vehicles, and tools used in connection with construction work. The term "workers" includes every person or firm performing work in or adjacent to public streets.

- B. Construction Equipment: When in traffic lanes, all vehicles and equipment shall be operated at normal traffic speeds. If this is not practicable, a slow moving vehicle emblem shall be displayed in accordance with the California Vehicle Code. Construction equipment shall not be parked in any lane intended for use by normal traffic. Equipment parked or stored at the work site shall be behind a guard rail, barrier, curb, or other protective device.
- C. One-Way Traffic: No construction equipment shall be operated in traffic lanes, except in the designated direction of travel for respective lanes.
- D. Construction Operations:
 - 1. Schedule surface operations so that work is not carried on intermittently throughout the area. Excavation or construction activities shall be scheduled and pursued to completion as required to permit opening of street areas to traffic without unnecessary delays.
 - 2. No construction work involving occupancy of traffic lanes shall be performed during adverse weather conditions or adverse road conditions, and traffic shall be properly safeguarded by the use of flashers and lights in addition to the signs and other markings specified herein. During these periods, no construction deliveries shall take place over a travel lane or immediately adjacent thereto.
 - 3. When traffic conditions dictate, the Contractor shall modify its work operation for such length of time as required to alleviate the hazardous traffic conditions.
- E. Equipment Travel:
 - 1. No construction equipment other than that designated and used for general highway transportation shall be moved on streets during hours of darkness or periods of adverse weather conditions that reduce normal visibility.
 - 2. Any construction equipment or material required for construction operations which exceeds the maximum vehicle dimensions specified in the Motor Vehicle Code, shall be moved only in accordance with established State and local regulations. No such oversize load shall be moved over public streets without first obtaining approval of the appropriate jurisdictional authority.
- F. Crossing Traffic Lanes: Construction equipment entering the traveled way from the median shall be safeguarded by a portable changeable message sign and with flaggers as required. Where traffic speeds are high, slow-moving construction equipment entering the traveled way shall be protected by a "rolling barricade" supplied by the California Highway Patrol (CHP). This operation shall be performed at off-peak hours, and requires coordination between the Contractor and the CHP, with the cost being borne by the Contractor.
- G. Flaggers: When flagging is required, provide qualified flaggers and flagging in accordance with the requirements of the Caltrans Traffic Manual, Chapter 5, Manual of Traffic Controls, Section 5.07.
- H. Removal of Traffic Control Devices: All temporary signs, barricades, barrier curbs, crash cushions, drums, and cones used to safeguard traffic in connection with construction work

shall be removed at the close of the work day, unless the state of the work is such that warning devices are still needed and are adapted for night closing.

- I. Storage: No material or traffic control devices shall be stored on any lane intended for traffic use.

1.06 PORTABLE CHANGEABLE MESSAGE SIGN (CMS)

- A. When conditions warrant, portable changeable message signs shall be furnished, placed, operated, and maintained at locations indicated or designated by the Engineer, in accordance with Section 12-3.01. "General," of the Caltrans Standard Specifications.
- B. A CMS shall be placed at a location 800 to 1000 feet upstream from the beginning of temporary barriers alerting motorists of slow trucks ingressing or egressing the median.
- C. The message shall read: "CAUTION - SLOW TRUCKS AHEAD," unless other words are required by the Engineer.
- D. The CMS shall be in continuous operation during the hours when trucks are entering or leaving the median at a rate greater than two trucks per hour.
- E. When two trucks or less per hour are leaving the median, the CMS shall be in operation only during the time when trucks are entering the traveled way. The CMS shall be turned off after the truck has safely entered the traveled way.
- F. Each portable changeable message sign unit shall consist of a 3-line matrix sign panel, a controller unit, a power supply, and a structural support system all mounted on a trailer. The unit shall be assembled to form a complete self-contained portable changeable message sign that can be delivered to the site of the work and placed in immediate operation. The complete message sign unit shall be capable of operating in an ambient air temperature range of minus 20 degrees C to plus 70 degrees C and shall not be affected by mobile radio transmissions.
- G. The trailer shall be equipped with at least 3 adjustable outrigger leveling pads near the frame corners to permit stable job site installations. The unit shall be capable of resisting overturning under wind loads of 60 mph with the sign in the fully elevated position. The overall width of the trailer unit, including the sign and mounting brackets, shall not exceed 102 inches while being towed.
- H. The message displayed on the sign shall be visible from 1200 feet and shall be legible from a distance of 750 feet, at noon on a cloudless day, by persons with vision corrected to 20/20. The sign shall be capable of displaying a minimum of 8 characters per line on each of three lines.
- I. The sign face shall be flat black and shall be protected from sun-glare by a method that does not interfere with the clarity of the sign message. The sign shall be raised and lowered by means of a power-driven lifting mechanism.
- J. The matrix sign shall be capable of a complete alphanumeric selection.

- K. Lamp matrix type signs shall be equipped with an automatic dimming operational mode which automatically compensates for the influence of a temporary light source or other abnormal lighting conditions. The sign shall have manual dimming operation modes of three or more different lamp intensities.
- L. Non-lamp matrix signs shall be internally illuminated at night.
- M. The controller shall be an all solid-state unit containing all the necessary circuitry for the storage of at least five pre-programmed messages. The controller shall be installed in a location allowing the operator to perform all functions from one position. A keyboard entry system shall be provided to allow an operator to generate an infinite number of additional messages over the preprogrammed five. The keyboard shall be equipped with a security lockout feature to prevent unauthorized use of the controller.
- N. The controller shall contain a non-volatile memory to hold the keyboard created messages in memory during a non-power period. It shall allow for a variable message display rate that allows the operator to match the information display to the speed of the approaching motorists. The flashing off time shall be operator adjustable within the control cabinet.
- O. Full operation height shall be with the bottom of the sign at least 7 feet above the ground and the top no more than 14 feet, 6 inches above the ground.
- P. The portable changeable message signs, when no longer required for the work, shall become the property of the Contractor.

1.07 POLLUTION ABATEMENT - GENERAL REQUIREMENTS

- A. Comply with General Conditions Article GC7.10. Conduct construction operations in a manner that will minimize pollution of the environment surrounding the area of the Work by all practicable means and methods. Apply specific controls as specified in the Contract Specifications and as follows:
 - 1. Waste Materials: No waste or eroded materials shall be allowed to enter natural or man-made water or sewage removal systems. Eroded materials from excavations, borrow areas, or stockpiled fill shall be contained within the Work area. The Contractor shall develop methods for control of erosion as specified in Article 1.08 herein.
 - 2. Burning: No burning of waste materials or debris will be permitted.
 - 3. Burying: No burying of waste materials and debris will be permitted within the limits of the District's property.
- B. Provide for and maintain the flow of all sewers, drains, building or inlet connections, and all water courses which may be encountered during progress of the Work. Do not allow the contents of any sewer, drain, or building or inlet connection to flow into trenches. Immediately remove from proximity of the Work all offensive matter, using such precautions as are required by local authorities having jurisdiction.

1.08 EROSION AND SEDIMENT CONTROL

A. Requirements:

1. The Contractor shall prevent erosion of excavated areas, embankments, stockpiled earth materials, and other erodible areas, and shall provide control of runoff sediment from siltation and pollution of the drainage systems.
2. Prevent erosion of excavated areas, embankments, stockpiled earth materials, and other erodible construction areas, and prevent pollution of drainage systems by diversion of storm runoff around construction activities or by trapping or retaining sediment delivered by storm runoff.
3. Provide control of construction operations so that excessive sediment or siltation shall not be introduced into the drainage systems from storm runoff.
4. Comply with all applicable Federal, State, and local laws, orders, and regulations concerning the prevention, control, and abatement of water pollution.

B. Erosion and Sediment Control Plan:

1. Within 30 calendar days after the effective date of the Notice to Proceed, submit a plan or program for erosion and sediment control for approval.
2. The proposed plan or program shall indicate complete design and construction details and locations of all proposed temporary control structures, barriers, berms, sediment retention basins, and any other salient features.
3. Approval of the Contractor's proposed plan or program shall not relieve the Contractor of responsibility for designing, constructing, operating, and maintaining erosion and sediment control facilities in a safe and systematic manner, and for repairing any damage to the control structures and equipment caused by floods or excessive storm runoff or other unforeseen circumstance.

C. Prevention of Erosion:

1. Protect open excavations, trenches, embankments, and the like with barriers, berms, dams, waterproof coverings, or other measures as required to prevent erosion of open earth areas and excavated piles from storm runoff.
2. Protect stockpiled earth materials to prevent erosion.
3. Where natural drainageways are intercepted by construction activities, such drainageways shall be protected so that runoff from the site or water from construction activities is not allowed to enter the natural drainage way.

D. Sediment Control:

1. Sediment retention basins shall be constructed only when there are no other, more economical, measures that can be employed to prevent sediment from entering streams, drainage systems, and storm sewers during storm runoff.

2. Sediment control shall be achieved by well-planned and scheduled excavation and backfill operations and effective control measures.

- E. Removal of Temporary Structures: Erosion and sediment control structures and facilities shall be removed from the site upon completion of the affected work.

1.09 DUST CONTROL

- A. The Contractor shall provide dust control at all times, including holidays and weekends, as required to abate dust nuisance on and about the site which is a result of construction activities. Dust control shall be by means of sprinklered water or by other approved methods, except that chemicals, oil, or similar palliative shall not be used.
- B. Quantities and equipment for dust control shall be sufficient to effectively prevent dust nuisance on and about the jobsite; and when weather conditions warrant, sprinklering equipment shall be on hand at all times for immediate availability.
- C. The Engineer shall have authority to order dust control work whenever conditions warrant, and there shall be no additional cost to the District therefor. Dust control shall be effectively maintained whether or not the Engineer orders such work.
- D. Complaints from the public shall be reported to the Engineer and shall be acted on immediately.
- E. Where earthwork operations are in progress, keep exposed earth surfaces dampened continuously. Also, keep dirt accessways and roads dampened continuously.
- F. If portions of the site are temporarily inactive or abandoned for whatever reason, provide dust control and abatement continuously during such periods of inactivity.
- G. Where dust resulting from construction activities has collected on public sidewalks and streets, hose down such sidewalks and streets to abate flying dust particles. Clean all sidewalks and streets from accumulated dirt and dust.

1.10 MUD CONTROL

- A. The Contractor shall take proper measures to prevent tracking of mud onto public streets, drives, and sidewalks. Such measures shall include, but are not limited to, covering muddy areas on the site with clean, dry sand.
- B. All egress from the site shall be maintained in a dry condition, and any mud tracked onto streets, sidewalks, or drives shall be immediately removed, and the affected area shall be cleaned. The Engineer may order such work at any time the conditions warrant.
- C. Where trucks will leave a muddy site and enter paved public streets, the Contractor shall maintain a suitable truck wheel-washing facility and crew. All trucks, or other vehicles leaving the site, shall be cleaned of mud and dirt, including mud and dirt clinging to exterior body surfaces of vehicles.

- D. All trucks coming to the jobsite or leaving the jobsite with materials or loose debris shall be loaded in a manner that will prevent dropping of materials or debris on streets. Spillage resulting from hauling operations along or across any public traveled way shall be removed immediately.

1.11 NOISE CONTROL

- A. Requirements: Minimize noise caused by construction operations, and provide working machinery and equipment fitted with efficient noise suppression devices. Employ other noise abatement measures as necessary for protection of employees and the public. In addition, restrict working hours and schedule operations in a manner that will minimize, to the greatest extent feasible, disturbance to residents in the vicinity of the Work.

- B. Definitions:

1. Daytime refers to the period from 7:00 a.m. to 7:00 p.m. local time daily except Sundays and legal holidays.
2. Nighttime refers to all other times including all day Sunday and legal holidays.
3. Construction Limits are defined for the purpose of these noise control requirements as the District right-of-way lines, construction easement boundaries, or property lines as shown on the Contract Drawings.
4. Zones, Special Zones, and Special Construction Sites outside of the Construction Limits shall be as designated by the local authority having jurisdiction. Such specially designated zones shall be treated by the Contractor as if they were within the Construction Limits.

- C. Monitoring:

1. Monitor noise levels of work operations to assure compliance with the noise limitations specified herein. Retain record of noise measurements for inspection by the Engineer.
2. Promptly inform the Engineer of any complaints received from the public regarding noise. Describe the action proposed and the schedule for implementation, and subsequently inform the Engineer of the results of the action.
3. Monitor noise levels day and night and for each new activity or piece of equipment. Start by measuring 3 times a day plus once a night for three consecutive days. Monitor noise levels at least once a week thereafter.

- D. Measurement Procedure:

1. Except where otherwise indicated, perform all noise measurements using the A-weight network and "slow" response of an instrument complying with the criteria for a Type 2 General Purpose sound level meter as described in ANSI S1.4.

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2. Measure impulsive or impact noises with an impulse sound level meter complying with the criteria of IEC 179 for impulse sound level meters. As an alternative procedure, a Type 2 General Purpose sound level meter on C-weighting and "fast" response may be used to estimate peak values of impulsive or impact noises. Transient meter indications of 125 dbC "fast" or higher will be considered as indications of impulsive noise levels of 140 d or greater.
3. Measure noise levels at buildings affected acoustically by the Contractor's operations at points between 3 feet and 6 feet from the building face to minimize the effect of reflections.
4. Measure noise levels at points on the outer boundaries of Construction Limits or Special Construction Sites for noise emanating from within.
5. Where more than one criterion of noise limits is applicable, use the more restrictive requirement for determining compliance.

E. Continuous Construction Noise: Prevent noise from stationary sources, parked mobile sources, or any source or combination of sources producing repetitive or long-term noise lasting more than a few hours from exceeding the following limits:

1. Maximum Allowable Continuous Noise Level, dBA:

<u>Affected Residential Area</u>	<u>Daytime</u>	<u>Nighttime</u>
Single family residence	60	50
Along an arterial or in multi-family residential areas, including hospitals	65	55
In semi-residential/commercial areas, including hotels	70	60
<u>Affected Commercial Area</u>	<u>At All Times</u>	
In semi-residential/commercial areas, including schools	65	
In commercial areas with no nighttime residency	70	
<u>Affected Industrial Area</u>		
All locations	80	

F. Intermittent Construction Noise: Prevent noises from non-stationary mobile equipment operated by a driver or from any source of non-scheduled, intermittent, non-repetitive, short-term noises not lasting more than a few hours from exceeding the following limits:

1. Maximum Allowable Intermittent Noise Level, dBA:

<u>Affected Residential Area</u>	<u>Daytime</u>	<u>Nighttime</u>
Single family residence areas	75	60
Along an arterial or in multi-family residential areas,	75	65

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including hospitals

In semi-residential/commercial areas, including hotels	80	70
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Affected Commercial Area

At All Times

In semi-residential/commercial areas, including schools	80
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In commercial areas with no nighttime residency	85
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Affected Industrial Area

All locations	90
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